

CLAIMS

What is claimed is:

1. A cable, including:
5 a conductor set;
a memory that stores cable data indicative of at least one characteristic of the
cable; and
circuitry, coupled to at least one conductor of the conductor set, and configured
to respond to a data request received on at least one conductor of the conductor set by
10 accessing at least some of the cable data and asserting the accessed data serially to at
least one conductor of the conductor set.
2. The cable of claim 1, wherein the cable includes a serial device, and the serial
device includes the circuitry.
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3. The cable of claim 2, wherein the memory is an element of the serial device.
4. The cable of claim 3, wherein the serial device is an I2C interface and the
memory is a read-only memory.
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5. The cable of claim 2, wherein the memory is distinct from but coupled to the
serial device.
6. The cable of claim 5, wherein the serial device is an I2C interface and the
25 memory is a read-only memory.
7. The cable of claim 2, wherein the cable also includes two connectors, the
conductor set is coupled between the connectors, and the serial device is included in
one of the connectors.
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8. The cable of claim 2, also including at least one radiation-emitting element
coupled to and driven by the second serial device.
9. The cable of claim 8, wherein the radiation-emitting element is an LED.

10. The cable of claim 8, wherein the serial device is configured to generate signals for driving the radiation-emitting element in response to signals received on at least one conductor of the conductor set.

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11. The cable of claim 10, wherein the signals for driving the radiation-emitting element cause said radiation-emitting element to produce at least one of a color, brightness, and blinking pattern determined by at least one of the signals received on said at least one conductor of the conductor set.

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12. The cable of claim 10, wherein the signals for driving the radiation-emitting element cause said radiation-emitting element to emit radiation indicative of connection status of the cable.

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13. The cable of claim 10, wherein the signals for driving the radiation-emitting element cause said radiation-emitting element to emit radiation indicative of at least one of a specific signal activity and a type of signal being transmitted through the cable.

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14. The cable of claim 10, wherein the cable includes a first radiation-emitting element and a second radiation-emitting element, the cable also includes a second serial device, the serial device is configured to generate signals for driving the first radiation-emitting element in response to the signals received on said at least one conductor of the conductor set, and the second radiation-emitting element is coupled to and driven by the second serial device.

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15. The cable of claim 1, wherein the cable data include data indicative of whether the cable is a secure cable.

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16. The cable of claim 1, wherein the cable includes a serial device, the serial device includes the circuitry, the cable stores a cryptographic key set, and the serial device is also configured to execute a verification operation with an external device including by transmitting at least one cryptographic key of the key set over at least one conductor of the conductor set.

17. The cable of claim 1, wherein the memory is a read-only memory.

18. The cable of claim 17, wherein the read-only memory is a mask ROM.

5 19. The cable of claim 17, wherein the read-only memory is a PROM which has been programmed with the cable data.

20. The cable of claim 1, wherein the memory is an analog memory.

10 21. The cable of claim 1, wherein the cable data include data indicative of at least one of the cable's manufacturer, the cable's type, the cable's class, a frequency-dependent attenuation table, far-end crosstalk coefficients, the cable's impedance, the cable's length, the cable's grade, and a date code.

15 22. The cable of claim 1, wherein the conductor set includes at least one conductor pair for differential signal transmission, and the cable data include data indicative of at least one of EMI-related coefficients, common mode radiation, and intra pair skew.

20 23. The cable of claim 1, wherein the conductor set includes a first conductor subset configured for data transmission from a transmitter coupled to the cable to a receiver coupled to the cable, and a second conductor subset configured for serial communication between the transmitter and the receiver, and wherein the circuitry is configured to respond to the data request by asserting the accessed data serially to at
25 least one conductor of the second conductor subset.

24. The cable of claim 23, wherein the second conductor subset consists of Display Data Channel lines.

30 25. A cable, including:
 a conductor set; and
 a subsystem, coupled to at least one conductor of the conductor set, and configured to respond to a change in state of at least one conductor of the conductor set by asserting cable guide information.

26. The cable of claim 25, wherein the subsystem includes:
at least one radiation-emitting element; and
circuitry coupled to and capable of driving the radiation-emitting element,
5 wherein the circuitry is configured to determine from the change in state of the at least
one conductor whether a device is coupled to the cable and to cause the radiation-
emitting element to emit radiation indicative of the cable guide information in response
to determining that a device is coupled to the cable.

10 27. The cable of claim 26, wherein the radiation-emitting element is an LED.

28. The cable of claim 25, wherein the cable guide information is indicative of a
type of device to which a free end of the cable should be connected, and wherein the
subsystem includes:
15 at least one radiation-emitting element; and
circuitry coupled to and capable of driving the radiation-emitting element,
wherein the circuitry is configured to determine from the change in state of the at least
one conductor whether a device of a specific type is coupled to the cable and to cause
the radiation-emitting element to emit radiation indicative of the cable guide
20 information in response to determining that a device of said specific type is coupled to
the cable.

29. The cable of claim 28, wherein the radiation-emitting element is an LED.

25 30. The cable of claim 25, wherein the subsystem includes:
at least one radiation-emitting element;
a first circuit coupled to and capable of driving the radiation-emitting element,
wherein the first circuit is configured to determine from a change in state of a first
subset of the conductor set whether a device of a first type is coupled to the cable and to
30 cause the radiation-emitting element to emit radiation indicating that a device of a
second type should be connected to the cable in response to determining that a device
of the first type is coupled to the cable; and
a second circuit coupled to and capable of driving the radiation-emitting
element, wherein the second circuit is configured to determine from a change in state of

a second subset of the conductor set whether a device of the second type is coupled to the cable and to cause the radiation-emitting element to emit radiation indicating that a device of the first type should be connected to the cable in response to determining that a device of the second type is coupled to the cable.

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31. A system, including:

a device;

a cable coupled to the device, wherein the cable includes:

a conductor set;

10 a memory that stores cable data indicative of at least one characteristic of the cable; and

circuitry, coupled to at least one conductor of the conductor set, and configured to respond to a data request received from the device on at least one conductor of the conductor set by accessing at least some of the cable data and
15 transmitting the accessed cable data serially to the device on at least one conductor of the conductor set.

32. The system of claim 31, wherein the device is configured to use the cable data transmitted thereto to implement equalization.

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33. The system of claim 31, wherein the device is a transmitter.

34. The system of claim 33, wherein the transmitter is configured to apply pre-emphasis to content data, and to use the cable data received from the cable to determine
25 pre-emphasis values for use in applying pre-emphasis to the content data.

35. The system of claim 33, also including a receiver, wherein the cable is coupled between the receiver and the transmitter, the receiver is configured to equalize data received over the cable from the transmitter in accordance with at least one
30 equalization parameter, and the transmitter is configured to use at least some of the cable data received from the cable to set at least one said equalization parameter.

36. The system of claim 33, also including a receiver, wherein the cable is coupled between the receiver and the transmitter, the receiver is configured to equalize

data received over the cable from the transmitter in accordance with at least one equalization parameter, and the transmitter is configured to use at least some of the cable data received from the cable to cause the receiver to set at least one said equalization parameter.

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37. The system of claim 33, also including a receiver, wherein the cable is coupled between the receiver and the transmitter, the receiver includes termination circuitry, and the transmitter is configured to use at least some of the cable data received from the cable to configure the termination circuitry.

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38. The system of claim 33, also including a receiver, wherein the cable is coupled between the receiver and the transmitter, the receiver includes termination circuitry, and the transmitter is configured to use at least some of the cable data received from the cable to cause the receiver to configure the termination circuitry.

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39. The system of claim 33, also including a receiver, wherein the cable is coupled between the receiver and the transmitter, the conductor set includes a first conductor subset configured for data transmission from the transmitter to the receiver, and a second conductor subset configured for serial communication between the transmitter and the receiver, and wherein the circuitry is configured to respond to the data request by transmitting the accessed data serially to transmitter over at least one conductor of the second conductor subset.

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40. The system of claim 31, also including a second device, wherein the cable is coupled between the device and the second device, the conductor set includes Display Data Channel lines for serial communication between the device and the second device, and the circuitry is configured to respond to the data request by transmitting the accessed data serially to the device over at least one conductor of the Display Data Channel lines.

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41. The system of claim 31, wherein the cable includes a serial device, and the serial device includes the circuitry.

42. The system of claim 41, wherein the memory is an element of the serial device.

43. The system of claim 42, wherein the serial device is an I2C interface and the
5 memory is a read-only memory.

44. The system of claim 41, wherein the memory is distinct from but coupled to the serial device.

10 45. The system of claim 44, wherein the serial device is an I2C interface and the memory is a read-only memory.

46. The system of claim 41, wherein the cable also includes two connectors, the conductor set is coupled between the connectors, and the serial device is included in
15 one of the connectors.

47. The system of claim 41, also including at least one radiation-emitting element coupled to and driven by the serial device.

20 48. The system of claim 47, wherein the radiation-emitting element is an LED.

49. The system of claim 41, also including a receiver, wherein the device is a transmitter, the cable is coupled between the receiver and the transmitter, the serial device is configured to generate signals for driving the radiation-emitting element in
25 response to commands received from at least one of the transmitter and the receiver on at least one conductor of the conductor set.

50. The system of claim 49, wherein the signals for driving the radiation-emitting element cause said radiation-emitting element to produce at least one of a
30 color, brightness, and blinking pattern determined by at least one of the commands.

51. The system of claim 49, wherein the signals for driving the radiation-emitting element cause said radiation-emitting element to emit radiation indicative of connection status of the cable.

52. The system of claim 49, wherein the signals for driving the radiation-emitting element cause said radiation-emitting element to emit radiation indicative of at least one of a specific signal activity and a type of signal being transmitted through the
5 cable.

53. The system of claim 49, wherein at least one of the transmitter and the receiver includes a second radiation-emitting element and circuitry for driving the second radiation-emitting element.
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54. The system of claim 53, wherein radiation emitted from at least one of the radiation-emitting element and the second radiation-emitting element has at least one of a color, brightness, and blinking pattern indicative of information useful for at least one of guiding installation of the cable and checking at least one connection of the cable.
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55. The system of claim 31, wherein the cable data include data indicative of whether the cable is a secure cable.

56. The system of claim 31, wherein the device is a transmitter, the cable
20 includes a serial device, the serial device includes the circuitry, the cable stores a cryptographic key set, and the serial device is also configured to execute a verification operation with the transmitter including by transmitting at least one cryptographic key of the key set over at least one conductor of the conductor set.

25 57. The system of claim 56, also including a receiver, wherein the cable is coupled between the receiver and the transmitter, and the transmitter is also configured to perform a verification operation with the receiver including by transmitting at least one cryptographic key over at least one conductor of the conductor set.

30 58. The system of claim 31, wherein the memory is a read-only memory.

59. The system of claim 31, wherein the memory is an analog memory.

60. The system of claim 31, wherein the cable data include data indicative of at least one of the cable's manufacturer, the cable's type, the cable's class, a frequency-dependent attenuation table, far-end crosstalk coefficients, the cable's impedance, the cable's length, the cable's grade, and a date code.

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61. The system of claim 31, wherein the conductor set includes at least one conductor pair for differential signal transmission, and the cable data include data indicative of at least one of EMI-related coefficients, common mode radiation, and intra pair skew.

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62. A method for providing cable data stored in a cable to an external device, including the steps of:

asserting a request from the external device to at least one conductor of the cable; and

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responding to the request by accessing at least some of the cable data and transmitting the accessed cable data serially from the cable to the external device on at least one conductor of the cable.

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63. The method of claim 62, wherein the external device is a transmitter configured to apply pre-emphasis to content data, and also including the step of: determining pre-emphasis values for use in applying pre-emphasis to the content data in response to at least some of the cable data received from the cable.

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64. The method of claim 62, wherein the external device is a transmitter configured to transmit data over the cable to a receiver, and the receiver is configured to perform equalization on the data, and also including the steps of:

setting at least one said equalization parameter in response to at least some of the cable data received at the transmitter from the cable; and

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in the receiver, performing equalization on the data in accordance with the at least one equalization parameter.

65. The method of claim 62, wherein the external device is a transmitter configured to transmit data over the cable to a receiver having termination circuitry, and also including the step of:

configuring the termination circuitry in response to at least some of the cable data received at the transmitter from the cable.

66. The method of claim 62, wherein the cable includes a conductor set, the
5 external device is a transmitter configured to transmit data over the cable to a receiver, the request is asserted from the transmitter to a first conductor subset of the conductor set and the accessed cable data are transmitted to the external device over the first conductor subset, and also including the step of:

transmitting content data from the transmitter to the receiver over a second
10 conductor subset of the conductor set.

67. The method of claim 62, wherein the cable includes Display Data Channel lines and other conductors, the external device is a transmitter configured to transmit data over the cable to a receiver, the request is asserted from the transmitter to at least
15 one of the Display Data Channel lines and the accessed cable data are transmitted to the external device over at least one of the Display Data Channel lines, and also including the step of:

transmitting content data from the transmitter to the receiver over at least one of the other conductors.
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68. The method of claim 62, wherein the cable includes a radiation-emitting element, and also including the steps of:

asserting commands from the external device to the cable on at least one conductor of the cable; and
25 in response to the commands, operating circuitry in the cable to generate driving signals for the radiation-emitting element.

69. The method of claim 68, also including the step of:
emitting radiation from the radiation-emitting element in response to the driving
30 signals, such that the radiation has at least one of a color, brightness, and blinking pattern determined by at least one of the commands.

70. The method of claim 62, wherein the external device is a transmitter, the cable stores a cryptographic key set, and also including the step of:

operating circuitry in the cable to execute a verification operation with the transmitter including by transmitting at least one cryptographic key of the key set over at least one conductor of the cable to the transmitter.

- 5 71. A method for asserting cable guide information from a cable including a conductor set and an information asserting subsystem, said method including the steps of:
- (a) monitoring at least one conductor of the conductor set; and
- (b) in response to a change in state of at least one conductor of the conductor
- 10 set, asserting the cable guide information from the information asserting subsystem.

72. The method of claim 71, wherein step (b) includes the step of:
- in response to a change in state of said at least one conductor of the conductor set indicating that a device is coupled to the cable, emitting radiation indicative of the
- 15 cable guide information.

73. The method of claim 71, wherein step (b) includes the step of:
- in response to a change in state of said at least one conductor of the conductor set indicating that a device of a first type is coupled to the cable, emitting radiation
- 20 indicative of the cable guide information, wherein the cable guide information is indicative of a second type of device to which a free end of the cable should be connected.